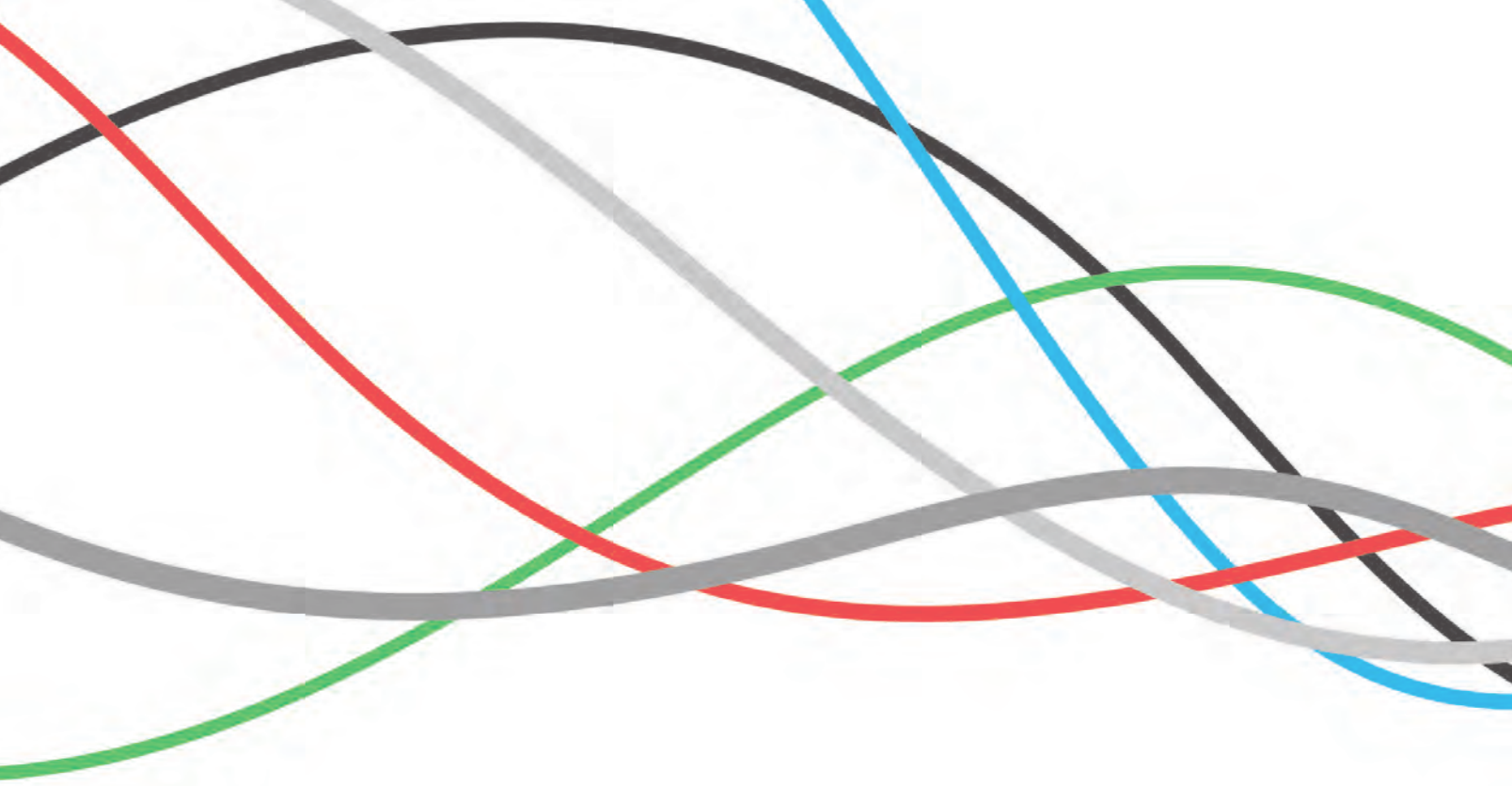# Are new teachers prepared to use education technology?

BY LIZ KOLB, KIERSTEN GREENE, AND CHRISTIE TERRY

Are we preparing new teachers for today's technology-rich schools? A multitude of surveys and reports examine the use of technology in K-12 classrooms from both the teacher and student perspective, but what drives those trends, and what role does teacher preparation play? We wanted to know if new teacher graduates are ready to effectively use the technology resources that are prevalent, and even necessary, in schools today.

To help us begin to understand the answer and determine if our question merits a large-scale investigation, we designed a small pilot survey that was distributed across the U.S. in 2019. We wanted to hear from early career teachers because they would have the

most recent experiences with teacher preparation. We defined early career teachers as K-12 classroom teachers who were less than five years out of their teacher preparation programs.

We also sent our survey to experienced teachers and administrators who work alongside new teachers every day. If we heard similar messages from all three groups, we would know that we were on the right track with our conclusions and plans for further study.

We hoped to get responses from about 200 participants, an appropriate number for a small pilot. We were pleasantly surprised when we far surpassed that number with a response of 276 administrators and technology professionals, 551 experienced teachers, and 48 early career teachers. While the survey was distributed nationwide, the majority of responses came from educators in Michigan, Missouri, Georgia, and New York. The respondents came from diverse community types: rural, town, suburban, and city.

In this article, we share the perspectives from the 48 early career educators on how well-prepared they felt to teach with technology tools going into their first years of teaching. The results from the administrators

and experienced teachers can be found online at **tinyurl.com/y7sav257**

The data have important implications not only for teacher education programs, but also for K-12 schools. The findings can inform districts' new teacher induction efforts and professional learning. They can also highlight areas where higher education and K-12 should collaborate to maximize the support each is providing in the area of technology integration.

WHERE NOVICE TEACHERS FEEL PREPARED

In our quantitative questions, we found three areas where the majority of novice teachers felt prepared to use technology, all of which relate to selecting and using technology to support individual learners or learning goals.

Novice teachers felt prepared to select appropriate technology tools aligned to learning goals. An essential role of teachers using technology is to know how to align the tools to support the learning goals, and we found that over 65% of new teachers in our sample were confident about that. Still, almost a quarter did not feel well-prepared in this area.
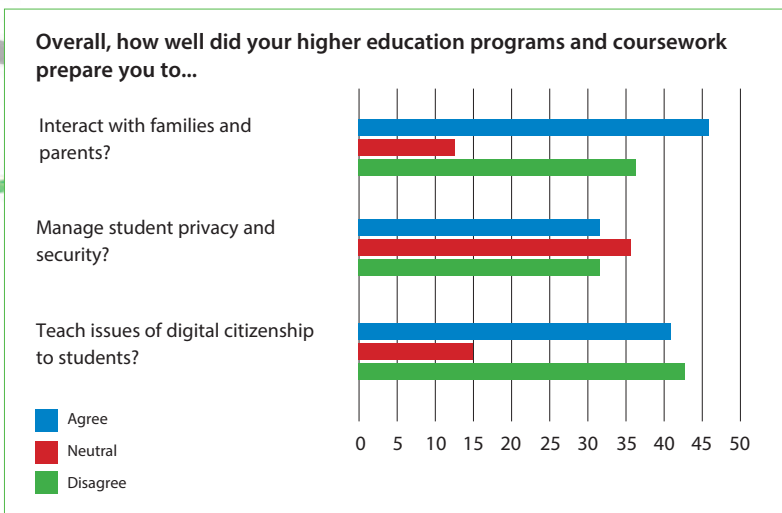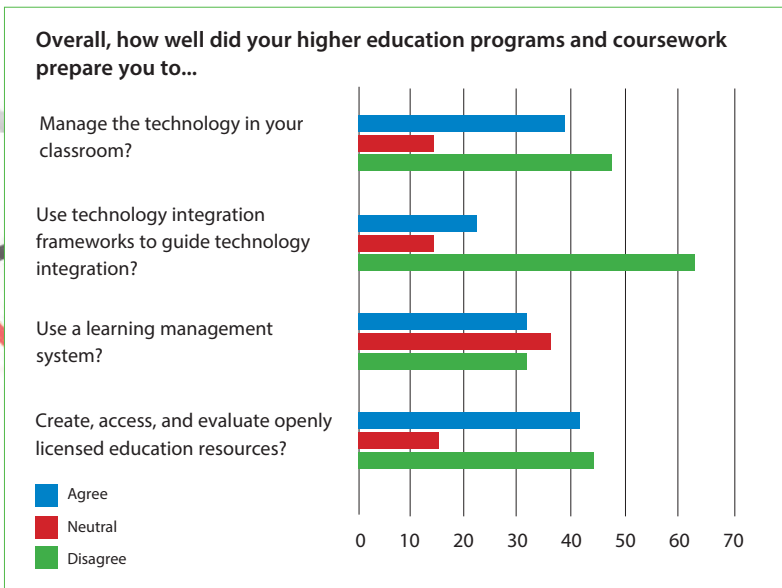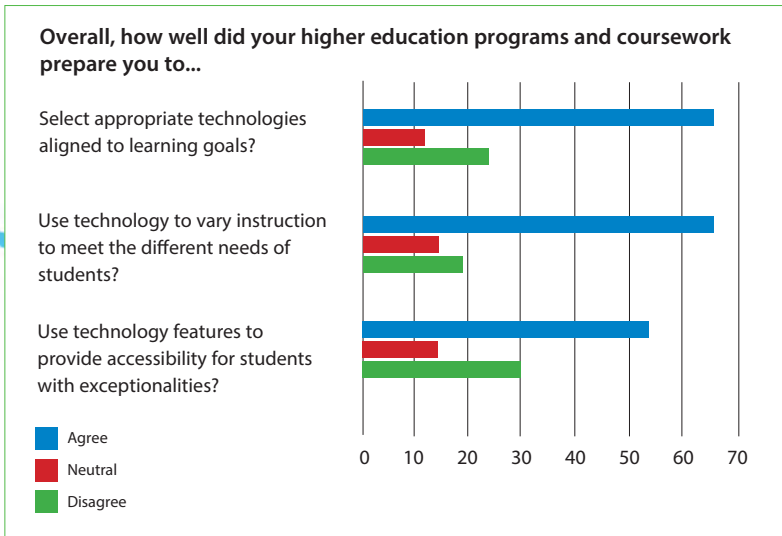
Almost two-thirds of novice teachers (65%) felt they were well-prepared to use technology to meet the different needs of their students. This is encouraging because differentiating instruction can be a challenge for classroom teachers, especially when trying to meet the various needs of many students, and technology tools are a promising tool for facilitating differentiation.

More than half of novice teachers (54%) felt confident using technology features to provide accessibility for students with exceptionalities. There are numerous technologies available to assist students who have IEPs and 504 plans, so it's important for teachers to know about these tools and how to use them. There is still work to do in this area, since 30% of our sample did not feel prepared to use these tools.

WHERE NOVICE TEACHERS ARE UNDERPREPARED

Novice teachers did not feel as well-prepared in several other aspects of integrating technology into teaching and learning. Most new teachers felt that they were underprepared to manage technology effectively during teaching and learning, with only 39% of early career teachers saying they

AREAS WHERE TEACHERS FEEL WELL-PREPARED

Overall, how well did your higher education programs and coursework prepare you to...

Select appropriate technologies aligned to learning goals?

Use technology to vary instruction to meet the different needs of students?

Use technology features to provide accessibility for students with exceptionalities?

■ Agree
■ Neutral
■ Disagree

0 10 20 30 40 50 60 70

Overall, how well did your higher education programs and coursework prepare you to...

Manage the technology in your classroom?

Use technology integration frameworks to guide technology integration?

Use a learning management system?

Create, access, and evaluate openly licensed education resources?

■ Agree
■ Neutral
■ Disagree

0 10 20 30 40 50 60 70

Overall, how well did your higher education programs and coursework prepare you to...

Interact with families and parents?

Manage student privacy and security?

Teach issues of digital citizenship to students?

■ Agree
■ Neutral
■ Disagree

0 5 10 15 20 25 30 35 40 45 50

were well-prepared. This is notable because integrating technology is a vital skill for teachers to have.

In a finding that is perhaps related, only 22% said their preservice programs were effective in introducing education technology frameworks, such as TPACK, Triple E, SAMR, and TIM. These frameworks serve an important role in guiding teachers to use technology in ways that extend and deepen learning rather than for basic drill and memorization.

A little under a third of novice teachers felt well-prepared to use a learning management system, which is a common way of posting assignments, tracking grades, and communicating with students and families. Only 41% of novice teachers felt they were well-prepared to create, evaluate, and access open educational resources, which have been touted as an opportunity to provide more equitable access to teaching resources and curriculum (Ossiannilsson, 2019). And despite digital tools being the primary form of school-to-home communications, only 46% of novice teachers felt well-prepared to provide effective school-to-home communications with digital tools.

Also concerning, novice teachers said they need better preparation to address student data privacy and digital citizenship. Knowing how to keep students' educational records and personal information safe when using screens is a necessary skill. In most schools, teachers are using applications that collect protected student information. Yet only 39% of new teachers felt well-prepared to address and manage student data privacy in their classroom teaching with screens.

The Children's Internet Protection Act requires that all K-12 schools have a digital citizenship curriculum, and often, this is expected to be taught by classroom teachers. Yet, only 41% of the new teachers we surveyed felt well-prepared by their teacher education programs to model and teach principles of digital citizenship.

IMPLICATIONS FOR TEACHER LEARNING

Our pilot study indicates that while new teachers feel well-prepared to select technology tools to align with learning

goals and support differentiation, they feel unprepared or underprepared in many other areas that are essential to teaching with technology. This points to the concern that there is likely a disconnection between the ways that we are addressing education technology in teacher preparation and the reality of K-12 classrooms.

This has implications not only for teacher preparation programs, but also for the professional learning that supports new teachers, including coaching, mentoring, and induction. Both before and after they begin their first classroom positions, teachers need support to make sure that they are using technology in meaningful ways as well as meeting expectations about privacy and digital citizenship.

There may be a need to improve communication and coordination between K-12 systems and teacher preparation programs and alternative licensure programs so that all stakeholders understand what capacities teachers need to have and can coordinate a continuum of support to ensure opportunities for building those capacities. Such coordination can also bolster systems for ensuring students' safety and privacy.

If we are going to make strong recommendations that will lead to real changes in these areas, it is important that we better understand the issues, such as how or if preparation varies across the country, the areas of critical need, and the areas where preparation programs and K-12 are already providing strong support. To help build this knowledge base, we have developed a new survey to capture more deeply how well new teachers are prepared to integrate technology in their teaching. We ask that school administrators, education technology coaches, and teachers participate in this next version of our survey that is open for participation at **tinyurl.com/54taxpst**

REFERENCE

Ossiannilsson, E. (2019). OER and OEP for access, equity, equality, quality, inclusiveness, and empowering lifelong learning. *The International Journal of Open Educational Resources, 1*(2).

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